

BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268-0001

PRICE ELASTICITIES AND INTERNET DIVERSION

Docket No. RM2014-5

COMMENTS OF THE UNITED STATES POSTAL SERVICE
IN RESPONSE TO DEMAND ANALYSIS TECHNICAL
CONFERENCE MATERIAL
(September 19, 2014)

Order No. 2117 (July 9, 2014) established this proceeding to consider issues relating to the estimation of demand elasticities. As a first step, the Order scheduled a technical conference on August 13, 2014, at which a presentation was made regarding research conducted on the Commission's behalf over a period of several years. The focus of the technical conference was an article attached to Order No. 2117 entitled "A Branching AIDS Model for Estimating U.S. Postal Price Elasticities." The paper was authored by two members of the Commission staff and a Commission consultant, with the latter being the primary presenter at the technical conference. Order No. 2117 set September 19, 2014, as the date by which interested parties could submit comments on the article and related matters discussed during the technical conference. The Postal Service hereby provides its comments in response.

Postal Service Need for Price Elasticities

In order to "review and consider improvements to the econometric elasticities demand model used by the Postal Service" (Order No. 2117 at 1), it is necessary to understand what purpose this model serves for the Postal Service (as well as for the Commission and the broader postal community). The primary purpose of the Postal Service's "econometric elasticities demand model" is to allow the Postal Service to

forecast future mail volume levels, by quantifying the impact of the various individual factors which affect the demand for mail. These include factors which lie outside the control of the Postal Service, such as the state of the macro-economy or technological innovations, as well as factors which lie within the Postal Service's control, including the impact of Postal prices on mail volumes. Since many factors simultaneously affect mail volumes, it is not possible to estimate Postal Price elasticities in isolation. Instead, they can only be accurately modeled within the context of a fully-specified set of econometric equations that control for the impact of non-price factors potentially affecting mail volume – the macro-economy, the rate of electronic diversion, etc.

The critical linkage between elasticities and accurate forecasting precludes incentive to systematically over-estimate or under-estimate the effect of price on mail volumes. The use of incorrect or biased elasticity estimates by the Postal Service will lead to inaccurate volume forecasts and flawed operational, pricing, budgeting, and policy decisions. Evaluation of alternate elasticity estimates is never done on the basis of what elasticity estimates the Postal Service might "want," but rather is done solely on the basis of which set of elasticities is likely to generate the best volume forecasts.

Moreover, any proposed alternative elasticity estimates which have not been incorporated into a usable forecasting model would be of dubious utility. As noted, the primary purpose of demand analysis is to forecast mail volumes going forward. Of course, price elasticities can be used for other purposes, such as an assessment of relative value-of-service for purposes of pricing. Yet even in the context of pricing, the linkages between elasticities and forecasting are strong. The best elasticities for pricing are always the ones which best reflect the actual expected effects of the pricing

changes under consideration, which, virtually by definition, are those actually used in the best available forecasting model. The notion of using one set of elasticities for forecasting, but a different set of elasticities for some other purpose, is inherently problematic. Usable demand parameters have to be grounded in a usable forecasting model.

Current Postal Service Model

If the purpose of this proceeding is to “review and consider improvements to the econometric elasticities demand model used by the Postal Service,” then the logical starting point for any such inquiry needs to be the “the demand model used by the Postal Service”.

The Postal Service has a comprehensive forecasting model which produces quarterly volume and revenue forecasts for mail, subdivided among more than 250 distinct mail categories. The centerpiece of this forecasting model is a set of more than 40 separate econometric demand equations which are used to model the demand for various categories of mail. The forecasting model is further supplemented by a set of more than 25 share equations which are used to model mailers’ use of worksharing discounts within First-Class and Standard Mail, including the impact of relative Postal prices on mailers’ worksharing decisions.

This forecasting model and the equations which underlie it have been developed and improved over the course of a continuous program of serious economic and econometric investigation which has been ongoing for more than 30 years. The equations from which the Postal Service’s current price elasticities are estimated are

constantly being re-evaluated to incorporate new data, alternate hypotheses and improved econometric techniques.

The results of these efforts have been forecasts of postal volumes which generally have, with the exception of the period of devastating economic upheaval following the onset of the Great Recession, generated consistently accurate volume forecasts over a wide range of exogenous circumstances and postal rate increases. It is important, then, that any possible “improvements to the econometric elasticities demand model used by the Postal Service” begin with an appreciation of the existing models and the work which has led to these equations.

The Branching AIDS Model

The Branching AIDS Model shares one fundamental aspect with the Postal Service’s existing model(s). Like the Postal Service’s model, the Branching AIDS Model attempts to explain mailer behavior by applying rigorous statistical (econometric) techniques to actual historical data. Therefore, insights from the Branching AIDS model may have some potential to suggest avenues of improvement in the Postal Service’s existing models.

The basic approach of the Branching AIDS Model is described in the second paragraph of the paper.

We begin by econometrically fitting a conventional demand equation, the “trunk” equation, to explain aggregate expenditures for domestic mail services. Next, we fit a branching sequence of share equations based upon the Almost Ideal Demand System (AIDS) model originally developed by Deaton and Muellbauer (1980). In our model, the share equations at the branching points describe the division of postal revenues among mail classes, then by rate categories, and, finally, by shapes.

That is, the Branching AIDS Model begins with a single econometric equation which fits an econometric model to explain total expenditures on domestic mail services. Total Postal revenue is then sub-divided by mail category via a series of share equations, which model the share of total Postal expenditures within a particular mail category as a function of several explanatory variables, including the prices of various mail categories.

The Postal Service's model differs in two ways from the Branching AIDS Model. First, the variable(s) being modeled in the Postal Service's system are mail volumes, whereas the Branching AIDS Model uses expenditures (i.e., Postal revenues) as its dependent variable(s). Second, rather than beginning with a single model that includes all types of (domestic) mail, as is done in the Branching Aids Model, the Postal Service estimates separate equations tied to specific mail categories that reflect differences in the users of these different mail categories and in the factors which affect the demand for these different types of mail.

The Postal Service is not opposed to the search for improvements to its existing econometric demand and forecasting models. On the contrary, the Postal Service is engaged in the full-time pursuit of such improvements. And some of the results from the Branching AIDS Model are interesting and worthy of further exploration. For example, the Branching AIDS Model finds that changes in average revenue per-piece tend to be less than proportional to changes in fixed-weight price indices, as mailers may be able to adjust their mail mix within a mail category in order to mitigate some of the rate increase. This could have important implications for revenue forecasting and is worth further evaluation. In addition, the Branching AIDS Model could represent a framework that may be useful in developing share equations at finer levels of detail than

are currently available for some mail categories (e.g., Retail versus Commercial distinctions within the mostly-competitive package market). But, as noted above, it is important that any possible “improvements to the econometric elasticities demand model used by the Postal Service” begin with an appreciation of the existing models and the work which has led to these equations.

Weaknesses and Limitations of the Branching AIDS Model

Upon review, a number of shortcomings of the Branching AIDS Model can be discerned. These are discussed next.

- Treatment of Mail Users as Homogeneous

The Postal Services views the key conceptual weakness of the Branching AIDS Model to be the fact that it attempts to model “a hypothetical budget process for an average mailer.” (page 2) That is, the Branching AIDS Model begins with a single demand equation for all Postal mail.

But the long history of the Postal Service’s work in modeling the demand for mail – as well as common sense – strongly suggest that an “average mailer” of Standard Mail (a direct-mail advertiser) is very different from an “average mailer” of Periodicals Mail (a magazine publisher), is very different from an “average mailer” of Parcel Select (which, in recent years, has been UPS and FedEx using the Postal Service for “final mile” delivery), and is very different from an “average mailer” of First-Class Single-Piece Letters (households). Not only do these mailers have different average price elasticities, but they also differ in their response to macro-economic conditions, their use of Internet and electronic alternatives, and other factors. Thus, no such “average mailer” of all postal products exists in the real world in any meaningful sense. When

there is minimal (if any) overlap between particular sets of individuals and entities mailing distinct postal products, it is likely to be inappropriate to combine those particular sets into one demand model. It is even more likely inappropriate to lump *all* possible sets of mailers into *one* aggregate demand model. Put more succinctly, mailers of magazines typically do not deliberate much about whether to mail those magazines as Periodicals, or as single-piece parcels. Rather, the sets of customers using those two types of mail are essentially distinct, with distinct elasticities. And, in fact, across different types of mailers, it is precisely these differences in elasticities that are of particular interest to the Postal Service.

By estimating a single demand equation, the Branching AIDS Model begins with an assumption that all types of mailers are generally alike and that all types of mail are similarly affected by the factors being modeled, including Postal prices. As a result of this dependence on the single trunk equation for all postal mail, the elasticity in the trunk equation “carries through and affects all subsequent elasticities” as Dr. Pearsall explained at the Technical Conference [~1:10:45]. This can be seen, with regard to Postal price elasticities in Table 3 at page 19 of the paper, where the range of Postal price elasticities by class is extremely narrow, ranging from -0.61 (Periodicals) to -0.86

Priority and Express Mail)¹. In contrast, the Postal Service's models suggest a much wider range of Postal price elasticities.²

- Flaws in the Estimation of Cross-Price Relationships between Mail Categories

The primary goal of the Branching AIDS Model seems to be to develop a complete set of Postal cross-price elasticities. Dr. Pearsall emphasizes the fact that the Branching AIDS Model includes a complete set of cross-price elasticities with “a substantial proportion of the cross-price elasticities ... statistically significant” (p. 20). But this “complete set” of cross-price elasticities exists largely by construction. In fact, because the dependent variables within the branches are shares, non-zero cross-price elasticities are a necessary mathematical byproduct of the model and do not necessarily represent actual cross-category relationships. This is a significant deficiency in the structure of the research.

Consider, for example, two products which are completely independent of one another, A and B, each of which have a volume of 100 (and, hence, each of which have a “share” of 50 percent, by construction). If the price of A is increased, this will (*ceteris paribus*) reduce the volume of A (to, say, 80). If the volume (and price) of B remains unchanged (at 100), the “share” of B will nevertheless increase (from $100/200 = 0.5$ to

¹ These numbers are not strictly comparable to the Postal Service's price elasticities, because the Branching AIDS Model uses (a proxy for) revenue per-piece instead of price. To convert the elasticities from the Branching AIDS Model to their counterparts in the Postal Service model, one has to multiply them by the coefficient on price from a separate set of equations which attempt to predict revenue per-piece as a function of price. These coefficients are generally in the range of 0.7 to 0.8.

² For example, for the Market-Dominant demand equations filed by the Postal Service in January and July, 2014, the own-price elasticity estimates ranged from -0.09 for Periodicals Mail to -0.98 for Media and Library Rate Mail.

100/180 = 0.56), which would give the mistaken implication that the “cross-price” relationship between these two products may be positive.

In order to test whether significant cross-price relationships actually exist between Postal products, these relationships must be modeled within a framework which allows for the possibility that there is, in fact, no cross-price relationship between any two particular mail categories. As suggested above, for example, Periodicals and Parcel Post are highly unlikely to exhibit any true cross-price relationship, yet the Branching AIDS model suggests that these two products are substitutes.

Moreover, the Branching AIDS Model only models cross-price relationships through aggregate price variables, the impacts of which are modeled by constant coefficients. But, in many cases, price-based shifts between mail categories are not smooth shifts that are proportional for any change in price, but are instead large one-time shifts triggered by significant one-time price changes. For example, in Docket No. R97-1 (Jan, 1999), the price of Standard Regular Automation 5-digit letters was for the first time set below the price of Standard ECR basic letters. This caused a (gradual) one-time shift of mail from Standard ECR to Standard Regular to take advantage of these newly-lower rates. Such a rate relationship between Standard Regular and ECR mail cannot be captured by simply including the price of Standard Regular Mail in the ECR equation (and/or vice-versa), but rather must be modeled in a way that recognizes the unique impact of this specific rate change. In the case of the Postal Service’s models, this is accomplished via Intervention Analysis within the (separate) demand equations for Standard Regular and ECR Mail. Under such circumstances, the benefits of this

approach to modeling these effects seem obvious, compared to the “share” approach employed by the Branching AIDS Model.

In its econometric and forecasting work, the Postal Service has also found that the best price measure for modeling cross-price relationships is frequently the difference between prices, or “discounts”. This forms the basis, for example, of the share equations used by the Postal Service to sub-divide First-Class Workshared and Standard Mail. The Branching AIDS Model does not appear to include any measures of relative price differences of this nature.

To some extent, there seems to be a fundamental misunderstanding of the Postal Service’s econometric models that lies at the heart of much of the Branching AIDS Model research and related earlier work. This is the apparent belief that, because the Postal Service does not include explicit cross-price measures within any of its demand models, the Postal Service is necessarily assuming that mail volumes do not shift between mail categories in response to changes in the relative prices of mail categories. In fact, this is not true. As noted above, the Postal Service’s demand equations for Standard Regular and ECR Mail include Intervention variables which model price-based shifts between these two subclasses in response to Postal rate changes in R97-1. Similar shifts in response to R2006-1 are also modeled econometrically.

As another example of this, Dr. Pearsall emphasized the way in which the Branching AIDS Model divides First-Class Workshared Mail between “Presort Non-Auto” and “Presort Automated” mail (see, e.g., page 4), claiming early in the Technical Conference [~14:15] that “there is no other way of doing this.” Yet, the Postal Service’s forecast models include share equations which sub-divide First-Class Workshared Mail not

merely between Non-Automation and Automation but also across Automation presort categories (mixed-ADC, AADC, 3-digit, 5-digit, and, before it was eliminated, carrier-route). These shares, in part, are modeled as functions of the relative prices of the respective mail categories and thus account for shifts between workshare mail categories in response to changes in discounts. These share equations have been a feature of the Postal Service's econometric and forecast models since their introduction in Docket No. MC95-1, now nearly 20 years ago.

Moreover, the Postal Service has found that the price driver for shifts between mail categories is not generally the prices themselves, but instead is the difference in prices between mail categories. Hence, models which rely on price levels (such as the Branching AIDS Model) are likely to be mis-specified, and "elasticities" based on price levels are likely to have very little or no practical meaning. Correctly specified elasticities, on the other hand, will vary considerably depending on the specific rate relationships associated with a particular set of price changes.

Consider, for example, the effect of R97-1 rates on Standard Regular and ECR Mail volumes. The Postal Service's econometric model for Standard Regular Mail estimates that the long-run impact of setting the price of Standard Regular Automation 5-digit letters below the price of Standard ECR Basic letters with the implementation of R97-1 rates (in January, 1999) was to increase the volume of Standard Regular Mail volume by 5.6 percent.³ As measured by the Postal Service's fixed-weight price index, the average rate increase for Standard ECR mail in R97-1 was 0.8 percent. An increase in

³ The long-run step value associated with the Intervention variable starting in 1999Q3 was 0.056 in the Standard Regular demand equation filed with the Commission in January, 2014.

volume of 5.6 percent in response to a price increase of 0.8 percent would imply a cross-price elasticity with respect to ECR Mail of approximately positive 7.

At the same time, the Postal Service's econometric model for Standard ECR Mail estimates that the unique impact of this aspect of R97-1 pricing was to reduce ECR volume by 22 percent.⁴ Was this an own-price effect in response to the 0.8 percent average price increase for Standard ECR Mail, which would imply an own-price elasticity for Standard ECR Mail at that time of approximately negative 27? Or was it a cross-price effect in response to Standard Regular Mail changes? The average price of Standard Regular Mail **increased** as a result of R97-1 by 1.3 percent, which would imply a cross-price elasticity of approximately *negative* 17, notwithstanding that cross-price effects for potential substitutes should be positive. In fact, note that, in this case, the average rate increase was actually **greater** for Standard Regular Mail than for Standard ECR Mail, but mail shifted **out of** ECR and **into** Regular because of the specific nature of the two rate changes.

This example illustrates the weakness of using simple price changes to measure shifts of mail between postal categories. It was not the 0.8 percent increase in the average price of Standard ECR mail that caused volume to shift from ECR to Regular. It was the specific pricing of one category of Standard Regular mail below a similar category of Standard ECR mail which produced the shift. And the Postal Service current model appropriately takes account of this structural pricing change, and mailers' response to that change, through an intervention analysis.

⁴ The long-run step value associated with the Intervention variable starting in 1999Q3 was -0.219 in the Standard ECR demand equation filed with the Commission in January, 2014.

Meanwhile, more recently, with the implementation of R2013-11 in January, 2014, Standard Regular rates increased by an average of 5.9 percent and Standard ECR rates increased by an average of 5.7 percent. In this case, however, there were no changes in relative rates across these two categories that might have induced mailers to shift from one to the other category. In this instance, then, the cross-price effects of Standard Regular Mail with respect to ECR Mail (and vice versa) were essentially zero. Needlessly attempting to inject cross-price variables into the model is a distraction at best, and runs the risk of distorting the own-price elasticities, upon which the current model appropriately retains focus.

- Additional Weaknesses of the Branching AIDS Model

In addition to these significant flaws that lie at the heart of the Branching AIDS Model, there are several other examples of ways in which the Branching AIDS Model compares unfavorably with the Postal Service's existing models.

For example, Dr. Pearsall explained his exclusion of lagged prices based on what he called a "conceptual objection" -- he believes that "postal prices are well-anticipated, so there is little reason to expect a lagged reaction." That appears, however, to be less of a "conceptual" objection, and more of a testable empirical hypothesis. And, of course, it is an empirical hypothesis which has, in fact, been tested -- repeatedly over the years -- by the Postal Service within its models. The statistical evidence strongly suggests that, Dr. Pearsall's beliefs notwithstanding, the reaction of some mailers to Postal price changes is, in fact, lagged.

The Branching AIDS Model accounts for lagged reactions to unusual events using what Dr. Pearsall call “exponential trends”. These are conceptually identical to the Intervention Analysis employed by the Postal Service. But the implementation of “exponential trends” in the Branching AIDS Model is more restrictive than the Postal Service’s Intervention Analysis, because the Branching AIDS Model restricts all of the “exponential trends” to have a single rate of adoption – which is not even estimated simultaneously with the other equation parameters. In contrast, the Postal Service’s Intervention Analysis procedure allows for unique rates of adoption for each individual Intervention, and each Intervention is estimated simultaneously with the other equation parameters.

As another example of a weakness in the Branching AIDS Model vis-à-vis the Postal Service’s existing econometric models, near the end of the Technical Conference [~1:31:00], Dr. Pearsall suggested that it was “probably right” that the significance of Federal Elections as a driver of Standard Mail has increased recently, “but that doesn’t mean I can capture it very well”. But, in fact, the Postal Service’s Standard Mail models all recognize the increased significance of Election Mail by introducing additional election variables over the most recent Federal election cycles. The Standard Regular equation filed with the Commission in 2014, for example, includes new election dummies starting in 2008 (the election in which Dr. Pearsall hypothesized that election mail increased most dramatically).

Net vs. Gross Price Elasticities

One noticeable feature of the Branching Model is that the mail price elasticities tend to be greater than those estimated by the Postal Service. Even setting aside the

fundamental flaws of the Branching AIDS Model that render its results of questionable utility, however, the elasticities presented in the Branching AIDS Model are not directly comparable to those estimated by the Postal Service, nor are they the elasticities which are of most value to the Postal Service and the Commission. This point was addressed toward the end of the Technical Conference [~1:50:00] when Robert Mitchell raised an important distinction between what he called “gross elasticities” and “net elasticities”. As Mr. Mitchell correctly pointed out, the “price elasticities” with which many postal observers are most familiar are what he called “net price elasticities” – i.e., they reflect the extent to which postal rate increases will cause mail volume to leave the Postal Service entirely. The higher price elasticities reported in the Branching AIDS Model, however, are not strictly comparable to these historical values. These “gross” elasticities reflect two effects – not only mail that leaves the Postal Service entirely, but also mail that shifts from one mail category to another. But mail that shifts out of one postal category into another category as a result of a price increase has a very different impact on postal finances than mail that, as a result of a price increase, leaves the postal system entirely. The overall loss of mail volume is measured by the net elasticity, which is the elasticity estimate that comes from the Postal Service’s current model.

Moreover, given that it is often the case that postal prices increase by roughly equivalent percentages, such “cross-price” effects are largely immaterial, as in such instances there may be no discernible change in the relative prices of two or more mail categories. As a result, the “gross elasticities” estimated in the Branching Model do not measure the net impact on mail volume that occurs, for example, following an across-the-board rate increase above the rate of inflation (e.g., the exigent increase in Docket

No. R2013-11). A simplistic comparison of “gross elasticity” results from the Branching AIDS model to “net elasticity” estimates from other models is not appropriate, and will likely lead to invalid conclusions regarding the price-sensitivity of mail and the risks to the Postal Service of rate increases.

Near the end of the Technical Conference, Dr. Pearsall seemed to suggest that “you can’t think of Postal price elasticities for a product” [~1:57:30]. But the product level is actually the level at which the broader importance of price elasticities is most clear. The Postal Service’s existing models, for example, recognize that mail may shift between Automation and Non-Automation categories of First-Class and Standard Mail, and that one factor which drives these shifts are changes in automation discounts. But the Postal Service does not calculate “price elasticities” to reflect these shifts because shifts between mail categories within postal categories are not a “risk” to the Postal Service of aggregate rate increases. The primary importance of understanding Postal price elasticities is to understand the potential negative impact of price changes in terms of potentially driving mail out of the Postal Service entirely – i.e., net price elasticities. The “own-price elasticity for non-automated presort [of] -15.843” that is reported by the Branching AIDS Model (p. 20, 4th bullet point) is a number that holds no actual meaning to anybody within the Postal community. Taken at face value, it suggests that an increase in the price of this product would cause a huge loss of mail volume and greatly weaken the Postal Service’s financial position. Yet in fact, it is far more likely that this volume would not be lost to the Postal Service, but would instead shift into other postal categories. Therefore, the reported high price elasticity gives absolutely no information

about how much of this non-automated presort volume is "at risk" of leaving the Postal Service.

Thus, when the Branching AIDS Model paper indicates that "own-price elasticities tend to become larger in absolute value as we progress up the tree" because "[a] large negative own-price elasticity of demand usually comes paired with a large positive cross-price elasticity" (pp. 19 – 20), it is stating a tautology that (a) is already incorporated within the Postal Service's existing models, and (b) is of no apparent practical use. The Postal Service's models properly consider shifts between mail categories, but the alternative approach presented in the paper -- or, really, any cross-price based approach -- does not reflect the actual drivers of shifts between mail categories as such shifts have empirically occurred in the real world. Moreover, this feature of the Branching AIDS model necessarily precludes direct comparison of the own-price elasticities estimates it generates with those produced by the Postal Service model.

Have Postal Price Elasticities Changed over Time?

At one point, Dr. Pearsall was asked if the Branching AIDS Model was "better able to study [changes in elasticity] than the Postal Service's model." His response was "Yeah, I think so". But Dr. Pearsall offered no explanation for why this might be the case and, in fact, there is no obvious reason why this might be the case. The issue of whether Postal price elasticities (or the relationship between mail volume and any other factor) have changed over time is an empirical question. And empirical questions can be tested statistically within the framework of any well-specified econometric model. This

includes, of course, the well-specified econometric models currently used by the Postal Service.

One inference that can be drawn from the Postal Service's models is that Postal price elasticities estimated for most mail categories have not changed appreciably over time. There is a misunderstanding among some analysts that this is a restriction of the Postal Service's models that is forced upon the Postal Service by its choice of functional form. In fact, however, this gets the causal relationship exactly backwards. The functional form used by the Postal Service was chosen **because** Postal price elasticities have been found to be constant over time. And, in fact, this conclusion – that Postal price elasticities are largely unchanged over time – is easily tested and, if necessary, corrected within the Postal Service's econometric framework.

Postal Service witness Thress presented the results of several such experiments in his rebuttal testimony in R2006-1 (USPS-RT-2). Similar evaluations of the stability of all of the Postal Service's econometric estimates, not merely price elasticities, are regularly undertaken, most systematically through a series of recursive analyses which evaluate changes to the Postal Service's equations over time. Such analyses frequently lead to improvements in the Postal Service's models.

It is a simple matter to investigate within the Postal Service's own models the sorts of interaction terms which the Branching AIDS Model considers. And, in fact, such interaction terms have been investigated to test for changes in price elasticities – and found to be statistically insignificant (and of indeterminate direction). Dr. Pearsall laments that the coefficients on these interaction variables are “not very robust” within the Branching AIDS Model. In contrast, the results of similar experiments using the

Postal Service's models have tended to produce much more unequivocal results. And those results have strongly suggested that Postal price elasticities have not changed appreciably in recent years.

Conclusions

The Postal Service is not opposed to the search for improvements to its existing econometric demand and forecasting models. In fact, the Postal Service itself devotes considerable resources to this objective. And, to the extent that some of the results from the Branching AIDS Model are interesting and might be worthy of further exploration, such explorations will be undertaken. In particular, the Postal Service agrees that it may well be worthwhile to use some features of the Branching Model for those cases where mailers can reasonably be assumed to choose how to allocate their expenditures across similar postal products (e.g., retail vs. commercial packages by shape, by mail category). The Postal Service has been making an ongoing effort to estimate separate shape-based demand equations. In the future, this work may include something akin to the share equations outlined in the Branching Aids Model. These investigations will undoubtedly continue.

The Postal Service questions, however, whether the fundamental conceptual basis of the Branching AIDS Model is appropriate across the wide range of actual postal customers. The critical underpinnings of the Branching AIDS Model – the combining of all mail within a single “trunk” equation, the share-equation methodology which assumes the existence of cross-price relationships by construction rather than as a result of statistical testing, and the limiting of cross-price relationships as those measured by

aggregate price indices – render the Branching AIDS Model as an inappropriate model to answer the relevant questions. In particular, it seems unlikely that such a model would present a viable replacement for the more direct measurement methodology upon which the Postal Service's forecasting models have been based for many years.

Respectfully submitted,

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